



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,286	12/19/2006	Patrick John Volpe	0069518-000003	5428

21839 7590 12/29/2008
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

ALLEN, CAMERON J

ART UNIT	PAPER NUMBER
----------	--------------

1797

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

12/29/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No. 10/573,286	Applicant(s) VOLPE, PATRICK JOHN	
	Examiner CAMERON J. ALLEN	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35-20, 22-26, 29-33, and 38-40 is/are rejected.
- 7) ☒ Claim(s) 4,21,27,28,34-37 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/19/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 4, 27, 28, 32-37 and 41 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only, and/or, cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 27, 28, 32-37 and 41 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 5, 7, 10, 15-17, 22, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Itzhak US 6,733,654.

Regarding claim 1, Itzhak discloses a method of purifying wastewater that comprises the steps of:

(i) passing the wastewater through an electrocoagulation cell which

Art Unit: 1797

comprises a plurality of reaction plates or electrodes disposed within said cell and spaced apart from each other whereby said wastewater is treated by passing an electric current through the wastewater to thereby produce purified water; (Column 2 lines 31-38) (Column 5 lines 20-25)

(ii) re-using said purified water for cleaning or other purposes to produce wastewater; and (Column 2 lines 31-38)

(iii) recycling the wastewater back to the electrocoagulation cell. (Column 2 lines 31-38)

Regarding claim 2, Itzhak discloses the method of claim 1 wherein the wastewater is filtered prior to step (i) to remove large particles, if present, from the wastewater. (Column 4 lines 9-11)

Regarding claim 5, Itzhak discloses the method of claim 1 wherein direct current is applied to the reaction plates or electrodes of the electrocoagulation cell. (Claim 4)

Regarding claim 7, Itzhak discloses the method of claim 1 wherein the voltage applied to the electrodes falls within the range 10-110 volts. (Column 5 line 25)

Regarding claim 10, Itzhak discloses the method of claim 1 wherein the current applied to the reaction plates or electrodes falls within the range 2-100 amps. (Column 5 line 26)

Regarding claim 15, Itzhak discloses the method of claim 1 wherein 2-75 electrodes are used in the cell. (Column 5 lines 24-25)

Regarding claim 16, Itzhak discloses the method of claim 15 wherein 2-26 of the electrodes are connected to the power supply. (Column 4 line 64)(Column 5 lines 24-25)

Art Unit: 1797

Regarding claim 17, Itzhak discloses the method of claim 1 wherein the flow rate of wastewater through the electrocoagulation cell falls within the range 2-1000 L/min.

(Column 4 line 8)

Regarding claim 22, Itzhak discloses the method of claim 1 wherein the purified wastewater is filtered prior to re-use. (Filter 8 figure 1)

Regarding claim 23, Itzhak discloses the method of claim 22 wherein particles with a size greater than 10 μm are removed. (Column 5 line 27-28) The Examiner interprets the sand filter to filter in the range of 10-infinity μm . The Examiner interprets greater than 10 μm to be open ended.

Claims 30-31 and 38-40 are rejected under 35 U.S.C. 102(a) as being anticipated in view of Waka JP 2004/066037 A.

Regarding claim 30, Waka discloses a closed circuit system for processing wastewater that includes:

(iv) a treatment zone comprising an electrochemical cell for processing

wastewater so as to produce purified water; (electric field tank 4)

(v) an application zone for application or use of the purified water for cleaning or other operations which produce wastewater; and (Abstract Advantage Section)

(vi) a recycling zone for recycling the wastewater back to the electrocoagulation cell. (Figure 1)

Regarding claim 31, Waka discloses the system of claim 30 wherein the treatment zone includes one or a plurality of pre-treatment tanks for the removal of fuel,

Art Unit: 1797

sludge and heavy oils, if present, from the wastewater. (Figure 1 tanks 2)

Regarding claim 38, Waka discloses the system of claim 30 wherein the application zone includes a storage tank or sump. (Tank 2)

Regarding claim 39, Waka discloses the system of claim 30 wherein the application zone is a cleaning zone and the wastewater or grey water produced in said cleaning zone contains detergents and cleaning agents. The examiner interprets the water to contain car wash chemicals from car wash 1.

Regarding claim 40, Waka discloses the system of claim 30 wherein the recycling zone includes a collection conduit for recycling the wastewater back to the electrocoagulation coll.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 6, 8, 9, 11, 12, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itzhak as applied above in claim 1.

Regarding claim 3, Itzhak discloses the method of claim 2 but does not disclose wherein particles with a size greater than 200 μm are removed. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose a filter that filters particles with a size greater than 200 μm , since using the filter would yield the expected result of increased filtration.

Regarding claim 6, Itzhak discloses the method of claim 1 wherein the electrocoagulation cell is orientated vertically (Figure 1 cell 7) but does not disclose that an outlet conduit is located at the top of the electrocoagulation cell and an inlet conduit is located at the bottom of the electrocoagulation cell. It would have been obvious to one of ordinary skill in the art at the time of the invention to orient an outlet conduit at the top of the electrocoagulation cell and an inlet conduit at the bottom of the

Art Unit: 1797

electrocoagulation cell, since it has been held that mere rearrangement of parts is within the ordinary skill of one in the art.

Regarding claim 8, Itzhak does not disclose the method of claim 7 wherein the voltage applied to the electrodes falls within the range 20-80 volts. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a range of 20-80 volts, since it has been held that where the general condition exists in the prior art, it is within the ordinary skill of one in the art at the time of the invention to discover or find the optimum or workable range.

Regarding claim 9, Itzhak does not disclose the method of claim 7 wherein the voltage applied to the electrodes falls within the range 20-60 volts. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a range of 20-60 volts, since it has been held that where the general condition exists in the prior art, it is within the ordinary skill of one in the art at the time of the invention to discover or find the optimum or workable range.

Regarding claim 11, Itzhak does not disclose the method of claim 10 wherein the current applied to the reaction plates or electrodes falls within the range 5-60 amps. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a range of 5-60 amps, since it has been held that where the general condition exists in the prior art, it is within the ordinary skill of one in the art at the time of the invention to discover or find the optimum or workable range.

Regarding claim 12, Itzhak does not disclose the method of claim 10 wherein the current applied to the reaction plates or electrodes falls within the range 5-20 amps. It

Art Unit: 1797

would have been obvious to one of ordinary skill in the art at the time of the invention to use a range of 5-20 amps, since it has been held that where the general condition exists in the prior art, it is within the ordinary skill of one in the art at the time of the invention to discover or find the optimum or workable range.

Regarding claim 18, Itzhak discloses the method of claim 17 but does not disclose wherein the flow rate falls within the range 5-200 L/min. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a range of 5-200 L/min, since it has been held that where the general condition exists in the prior art, it is within the ordinary skill of one in the art at the time of the invention to discover or find the optimum or workable range.

Regarding claim 19, Itzhak does not disclose the method of claim 17 wherein the flow rate falls within the range 10-50 L/min. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a range of 5-200 L/min, since it has been held that where the general condition exists in the prior art, it is within the ordinary skill of one in the art at the time of the invention to discover or find the optimum or workable range.

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itzhak as applied above in claim 1 in further view of Matu JP 11-123383.

Regarding claim 13, Itzhak discloses the method of claim 1 but does not disclose wherein the electrodes are manufactured from a metal selected from the group

Art Unit: 1797

consisting of aluminum, steel, iron, titanium, silver and brass. The Matu reference JP 11-123383 does disclose the use of an aluminum and steel electrode cell. (0031 and 0033) It would have been obvious to one of ordinary skill in the art at the time of the invention use an aluminum electrode, since the Matu reference discloses that it would yield the added benefit of increasing the diameter of a suspended solid and generate an aggregate that can more easily be filtered.

Regarding claim 14, Itzhak in view of Matu discloses the method of claim 13 wherein the electrodes are manufactured from aluminum or titanium. (Matu 0031 and 0033)

Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itzhak as applied above in claim 1 in further view of Ferguson US 5,021,250.

Regarding claim 24, Itzhak discloses the method of claim 1 but does not disclose wherein the purified water is stored in a storage tank before re-use. Ferguson US 5,021,250 does disclose the use of a storage tank in water treatment. (Column 5 lines 1-6) It would have been obvious to one of ordinary skill in the art at the time of the invention to use the storage tank in Ferguson, since it would provide the added benefit of storage.

Regarding claim 25, Itzhak discloses the method of claim 1 but does not disclose wherein the purified water is stored in a sump after re-use. Ferguson does disclose the use of a sump. (Column 6 lines 58-59) It would have been obvious to one of ordinary

Art Unit: 1797

skill in the art at the time of the invention to use the sump in Ferguson, since it would provided the added benefit of storage.

Regarding claim 26, Itzhak discloses the method of claim 1 but does not disclose wherein after step (i) the wastewater is passed through a reverse osmosis system. Ferguson does disclose the use of a reverse osmosis system. (Claim 32) It would have been obvious to one of ordinary skill in the art at the time of the invention to use the osmosis system in Ferguson, since it would yield the added benefit of increased filtration.

Claims 20 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itzhak as applied above in claim 1 in further view of Waka 2004/066037 A.

Regarding claim 20, Itzhak discloses the method of claim 1 but does not disclose wherein the purified wastewater is discharged into one or a plurality settling tanks for separation of contaminated floc, if present, from the purified wastewater. Wata does disclose the use of a settling tank (tank 6 figure 1) It would have been obvious to one of ordinary skill in the art at the time of the invention to use the settling tanks, since they would yield increased filtration and separation.

Regarding claim 29, Itzhak discloses the method of claim 1 but does not disclose wherein prior to step (i) the wastewater may be obtained from public or household showers, sinks, basins, baths, washing machines, dishwashers, kitchens or car washes and may be initially stored in a collection tank or sump. Waka does disclose the use of car washes. (Abstract) It would have been obvious to one of ordinary skill in the art at

Art Unit: 1797

the time of the invention to use the car wash in the Waka reference, since it would yield the added benefit of being able to recycle car wash waste waters. (Abstract)

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Itzhak in view of Wata, in further view of Smith 5,620,594.

Regarding claim 21, Itzhak discloses the method of claim 20 but does not disclose wherein the settling tanks are connected to a rainwater collection tank to allow collected rainwater to be discharged into the settling tanks to increase the volume of water available for recycling. Smith does disclose the collection of rain water in a tank for later use. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the collection tanks of Smith for rain water collection, since the tanks would provide the added benefit of collecting additional water for collection. (Smith figure 2 #16)(Column2 line 20-24)

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Waka as applied above in claim 30.

Regarding claim 42, Waka discloses the system of claim 30 but does not disclose wherein the system is automated. Itzhak does disclose an automated recycle system. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the process automated, since using the automation device would yield the added benefit of working with less human interaction

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAMERON J. ALLEN whose telephone number is (571)270-3164. The examiner can normally be reached on M-Th 9-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CJA

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797